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BROOKHAVEN NATIONAL LABORATORY

**Industrial Hygiene Field Service Report**

**Employee Exposure to XYZ in Building 1234**

**April 44, 2099**

Sample

## 1.0 Purpose & Scope

This document describes the SHSD Industrial Hygiene Group (IHG) personal exposure monitoring planning and hazard analysis report procedures. It provides standards of performance for setting up sampling and report content. Its purpose is to establish a policy to:

- Ensure development of high quality assessment reports
- Ensure rapid dissemination of information to appropriate groups,
- Comply with data recording/recordkeeping requirements for critical records.

The goal of the procedure is to provide a uniform protocol for documentation of hazard analyses assessing personnel exposure to industrial hygiene hazards.

## 2.0 Responsibilities

2.1 **Program Administration:** This procedure is administered through the SHSD Industrial Hygiene Group.

2.2 Members of the SHSD Industrial Hygiene Group are required to follow this procedure.

2.3 Other BNL organizations that provide BNL with field monitoring services should follow an equivalent of this SOP to ensure an equal or superior method of assessment documentation and recordkeeping.

2.4 ***Industrial Hygiene Professional:*** The *Industrial Hygiene Professional* of SHSD and other BNL organizations are to be qualified by this SOP. These individuals will conduct or supervise industrial hygiene hazard assessments and personal exposure monitoring. These *IH Professionals* are responsible for:

- Planning the appropriate sampling strategy.
- Interpreting, reporting, and documenting personal exposure monitoring in accordance with the requirements of this procedure, other appropriate SOPs, and generally accepted professional standards and practices.
- Ensuring a quality report is prepared that documents the exposure, evaluates the relevance to exposure standards, and recommends protective and corrective actions.
- Ensuring the final report is provided in a timely manner to all appropriate parties.
- Ensuring that the appropriate data is correctly and completely entered into the BNL IH exposure monitoring database (i.e. *Compliance Suite*®).
- Ensuring that original records of sampling and analysis enter the SHSD *Record Custodian* filing system.

2.5 ***Industrial Hygiene Technician (Sampler)*:** The industrial hygiene technician is to be qualified to conduct industrial hygiene personal exposure monitoring under the direction of his/her organization's *IH Professional*. The sampler is responsible for collecting personal exposure monitoring samples in accordance with the guidance of the *IH Professional* and the requirements of all SOP's pertinent to the particular monitoring requirements (i.e. Chain of custody, equipment check in/out, equipment operation, recordkeeping, etc.).

2.6 ***Compliance Suite® data entry:*** The management of the person conducting the sampling is responsible for entering complete and correct data into the BNL IH exposure monitoring database (i.e. *Compliance Suite*). This task may be assigned to one or more individuals who act as the data entry person for an organization, however, it remains the responsibility of the line management of the *Sampler* to ensure this task is fulfilled within 10 business days of the receipt of sampling results or the end of the sampling event involving direct reading meters.

## 3.0 Definitions

***BNL IH exposure monitoring database:*** A single, unified electronic database that compiles all industrial hygiene sampling records taken at BNL's Upton location. The current database is a BNL licensed copy of *Compliance Suite* maintained by the SHSD IH Group for data entry by the organization taking exposure assessment samples.

***Industrial Hygiene Technician (Sampler):*** A technician, qualified to conduct industrial hygiene personal exposure monitoring under the direction of an *IH Professional.*

***Industrial Hygiene Professional:*** A person designated by their Division Manager/Department Chair to conduct industrial hygiene hazard assessments.

***Record Custodian:*** A person designated by the IH Group Manager to maintain exposure monitoring data records in accordance with this procedure and BNL policies.

## 4.0 Prerequisites

None. See qualification in Section 7.

## 5.0 Precautions

**Personal Protective Equipment:** The use of personal protective equipment to protect personnel when preparing exposure assessment reports is not typically required. The collection of sampling data may expose workers to hazards. Follow all precautions in the corresponding SOP on sampling for specific hazards.

## 6.0 Procedure

6.1 **Equipment:** Typical file supplies (including: file cabinets, folders, computers, electronic image scanners, and electronic media).

6.2 **Exposure Assessment Sampling Strategy:** Documented exposure assessments for chemical hazards, physical hazards, biological agents, and ergonomic stressors are to use recognized assessment methodologies, sample collection techniques, calibrated equipment, and accredited IH laboratories for analysis (as appropriate). The assessment methodology adopted by SHSD IH Group is located in IH60100. This procedure is used to rank hazards and plan the scheduling of hazards on a yearly

basis. The BNL plan is adapted from the *AIHA Strategy for Occupational Exposure Assessment* which describes strategies for the collection and interpretation of occupational exposure monitoring data.

6.3 Record the need of sampling in the IH Exposure Monitoring Plan and Monitoring Scheduler maintained on the SHSD shared drive.

6.4 The BNL policy on sampling strategies to be used on the day of sampling is specified in ***Attachment 9.1*** *Fundamentals of the BNL Exposure Assessment Strategy*.

6.5 **Initial Notification of Employee Monitoring Results:** The *IH Professional* will determine whether or not an over exposure has occurred.

6.5.1 **Initial Notification of Employee Monitoring Results for all exposure monitoring:** Regardless of exposure level, *IH Professional* is to complete hazard assessments in a timely manner and notify affected employees and their line management within 5 business days using ***Attachment 9.5 5-day Employee Notification form,*** or equivalent. Also acceptable is the printout of sampling report from Compliance Suite or completion of a formal exposure assessment report containing the information in the Attachments of this procedure. ***Attachment 9.3*** *Justification of Employee Monitoring Notification Requirements* provides the documentation for the BNL employee notification policy.

6.5.2 **Initial Notification of Employee Monitoring Results when overexposure has occurred:** Where an over-exposure has occurred the *IH Professional* will determine the appropriate corrective actions to reduce exposure levels below the Occupational Exposure Limit and include these in the employee notification.

6.6 **Modification of Sampling Plan when exposure monitoring results are known.**

6.6.1 To determine the criteria to determine if an overexposure has occurred, and the action to be taken (ORPS, additional training, medical surveillance), refer to IH60300 and follow the reporting requirements in that SOP.

6.6.2 Modify the IH Sampling plan (IH Monitoring Scheduler) to set a requirement for follow-up exposure monitoring.

6.7 **Preparation of a formal report on the exposure monitoring or hazard assessment.** The *IH Professional* will ensure the preparation of a summary report of the exposure monitoring or hazard assessment that contains, at a minimum, the contents specified in ***Attachment 9.2*** *Report Content Requirements.* The formal report needs to be prepared regardless of the use of ***Attachment 9.5*** or equivalent; and it is highly desirable for it to be issued within 30 days of receipt of the sampling results and the conclusion of the event being sampled (on multiple day events).

**Summary of Reporting Timelines (in Business Days)**

| Day | Direct Reading Meter |
|---|---|
| 0 | End of Sampling Event |
| 5 | Employee Notification Deadline |
| 10 | Compliance Suite Entry |
| 30 | Formal Assessment Report or Compliance Suite Report |
| | |

| Day | Laboratory Analysis |
|---|---|
| -- | End of Sampling Event |
| 0 | Lab Results Received |
| 5 | Employee Notification Deadline |
| 10 | Compliance Suite Entry |
| 30 | Formal Assessment Report or Compliance Suite Report |

6.8 **Maintaining Documentation:** The *IH Professional* is to maintain documentation for all personnel samples collected at BNL in the following manner:

- The *original* of laboratory analysis reports, exhibits, photos, sketches, sampling sheets, etc is to be provided to the SHSD IHG *Exposure Monitoring Record Custodian*. The SHSD IHG *Exposure Monitoring Record Custodian* will issue a unique filing number to the sample documentation.
- The *original* of final assessment reports is to be provided to the SHSD IHG *Document & Record Custodian.*
- The official (original) copies of all records are to be kept by the SHSD IHG *Exposure Monitoring Record Custodian* and the *Record and Document Custodian* in a manner approved by BNL record retention policy and in compliance with OSHA and DOE regulations.
- The *Sampler* and *IH Professional* may keep unofficial copies of the files for personal reference. These are to be marked "COPY".
- Store electronic versions of sampling forms and formal reports on the SHSD Shared Drive

6.9 **Distribute a summary of the exposure results to OMC** that provides the following data: Name(s) and BNL# of employee(s) represented by the monitoring, the TWA-8

results, and the ACGIH and OSHA occupational exposure limit value. (Note: the 5-day Notification form suffices in the information provided.)

6.10 **Distribution of Copies to Responsible Individuals:** For all personal exposure monitoring hazard analyses, the formal report is to be distributed

6.11**Addressed** to: Line supervisor of employee(s)

6.12**Copies to:**

- Affected employees (personnel monitored and those represented by the monitored employees),
- Department Chair and Division Manager,
- IH Group Record Custodian (original),
- Facility Support Representative,
- ESH coordinator and
- Any other responsible party requesting a copy as authorized by OSHA or DOE regulations.

## 7.0 Implementation and Training

**Qualification Criteria:** Only individuals who have knowledge of this procedure and extensive experience in IH hazard assessments or certification in industrial hygiene will be qualified to perform the assessments described in this procedure. **Qualification criteria for any organization** using this SOP:

7.1 All work under this SOP shall be performed by persons who have demonstrated the competence to satisfactorily perform the tests as evidenced by experience and training to meet the qualification criteria set in IH50300 *BNL IH Program and IH Group Training & Qualification Matrix.* The qualification of personnel is to be by a method approved by the BNL IH Program Manager from SHSD.

7.2 *BNL Training & Qualification Program on Principle of planning, sampling and reporting on IH hazard assessments:* Personnel are to meet the performance measures set forth in *Attachment 9.6 Exposure Monitoring & Hazard Analysis Reporting JPM/Qualification.* This qualification is to be completed on a three year cycle.

7.3 *BNL Training & Qualification Program on Specific Hazards*

7.3.1 *Industrial Hygiene Technician (Sampler)* are to be trained to a level so that they understand the theory of the hazard to be sampled, the theory of the

sampling technique, the monitoring strategy, and the mechanisms and steps in operation of sampling equipment. Even when qualified, the technician is to conduct industrial hygiene personal exposure monitoring under the direction of an *IH Professional.* At a minimum, technicians will meet the requirements for the JMP of the corresponding hazard(s) as found in SHSD SOPs and IH50300 *BNL IH Program and IH Group Training & Qualification Matrix.*

7.3.2 *Industrial Hygiene Professional* shall have all training and qualification from SHSD SOPs and IH50300 *BNL IH Program and IH Group Training & Qualification Matrix* and have additional experience and education. They shall be designated by their management to direct hazard assessment sampling of technicians or professions and to interpret the results.

7.4 *Baseline Training and experience:*

7.4.1 *Comprehensive Practice Qualification: IH Technician-* The candidate shall meet the following requirements:

- AA or BS degree in Industrial Hygiene, Safety, or closely related major, **or**
- Certified Occupational Safety and Health Technologist or qualification that meet the examination requirements for OSHT, **or**
- AA or BS degree in science **and** one or more of the following:
  - AA or BS course in Industrial Hygiene (Semester/Quarter duration)
  - Vendor or University based Short Course in Industrial Hygiene Exposure Monitoring (3 day duration)
  - AIHA Professional Development Course concentrated in Industrial Hygiene Exposure Monitoring

7.4.2 *Comprehensive Practice Qualification: IH Professional-* The candidate shall meet the following requirements:

- BS or MS degree in Industrial Hygiene, Safety, or closely related major, **and**
- Certified Industrial Hygienist or qualification that meet the examination requirements for CIH, **and** (one or more of the following required)
  - BS or MS degree course in Industrial Hygiene (Semester/Quarter duration)
  - Vendor or University based Short Course in Industrial Hygiene Exposure Monitoring (3 day duration)
  - AIHA Professional Development Course concentrated in Industrial Hygiene Exposure Monitoring

7.4.3 *Limited Practice Qualification- IH Technician* (Temporary Assignment of approximately 1 year)- The candidate shall meet the following requirements (or an equivalent approved on a case by case basis by the IH Program Manager):

- AA or BS degree in Industrial Hygiene, Safety, or closely related major, **or**
- Certified Occupational Safety and Health Technologist or qualification that meet the examination requirements for OSHT, **or**
- AA or BS degree in science or NRRPT certification **and**
  - The applicable portion of a Fundamentals in IH Monitoring course **or** Successful completion of a challenge examination on the specialty principles **and**
  - Course in the specific topic delivered by or approved by the SHSD IH Group Manager **and**
  - Probation status during observation of three sampling events

7.4.4 **Limited Practice Qualification- IH Professional** (Temporary Assignment of approximately 1 year)- The candidate shall meet the following requirements (or an equivalent approved on a case by case basis by the IH Program Manager):

- BS or MS degree in Industrial Hygiene, Safety, or closely related major, or
- Certified Industrial Hygienist or qualification that meet the examination requirements for CIH, **and**
- Vendor or University based Short Course in the specialty of the Industrial Hygiene topic or equivalent training approved by the SHSD IH Manager.

## 8.0 References

8.1 AIHA Strategy for Occupational Exposure Assessment

## 9.0 Attachments

9.1 Fundamentals of the Planning Exposure Assessments Sampling
9.2 Report Content Requirements
9.3 Justification for IHG Policy of 5 day Notification form
9.4 Instructions for Saving Electronic Report Documents to the SHSD Shared Drive
9.5 *5-day Employee Notification of Monitoring Results* form

| BROOKHAVEN NATIONAL LABORATORY<br>Safety & Health Services Division<br><br>**INDUSTRIAL HYGIENE GROUP**<br>Standard Operating Procedure | NUMBER<br>**IH60500**<br>REVISION<br>**Final Rev10** |
|---|---|
| SUBJECT:<br>**Planning Sampling & Reporting Exposure Monitoring Results** | DATE<br>**06/01/07**<br>PAGE<br>**9** OF 28 |

9.6 *Job Performance Measure*- HP-IHP-60500 IH Professional for Exposure Monitoring & Hazard Assessment Reporting form
9.7 *Activity During Sampling* form

## 10.0 Documentation

| Document Development and Revision Control Tracking | | |
|---|---|---|
| PREPARED BY:<br>*(signature and date on file)*<br>J. W. Peters<br>Date: 07/15/04 | REVIEWED BY:<br>*(signature and date on file)*<br>R. Selvey<br>Date: 10/06/04 | APPROVED BY:<br>*(signature and date on file)*<br>R. Selvey; IH Group Manager<br>Date: 10/06/04 |
| ESH Coordinator/ Date:<br>*none* | Work Coordinator/ Date:<br>*none* | SHSD Manager / Date<br>*none* |
| QA Representative / Date:<br>*none* | Training Coordinator / Date:<br>*none* | Filing Code:<br>**IH52.05** |
| Facility Support Rep. / Date:<br>*none* | Environ. Compliance Rep. / Date:<br>*none* | Effective Date:<br>**10/07/04** |
| ISM Review - Hazard Categorization<br>☐ High<br>☒ Moderate<br>☐ Low/Skill of the craft | Validation:<br>☐ Formal Walkthrough<br>☐ Desk Top Review<br>☐ SME Review<br>Name / Date: | IMPLEMENTATION:<br>Training Completed: tracked in BTMS<br>Procedure posted on Web: 06/01/07<br>Hard Copy files updated: 06/01/07<br>Document Control: 06/01/07 |

| Revision Log | | |
|---|---|---|
| Purpose: ☐ Temporary Change ☐ Change in Scope ☒ Periodic review ☒ Clarify/enhance procedural controls<br><br>Changed resulting from: ☐ Environmental impacts ☐ Federal, State and/or Local requirements ☐ Corrective/preventive actions to non-conformances ☐ none of the above<br><br>Section/page and Description of change: Minor grammatical text revisions throughout the document. Significant changes to qualification criteria. Major revision to Attachment 9.5. | | |
| *Robert Selvey 10/13/04* (*Signature on file)*<br>SME Reviewer/Date: | Reviewer/Date: | Reviewer/Date: |
| Purpose: ☐ Temporary Change ☐ Change in Scope ☒ Periodic review ☒ Clarify/enhance procedural controls<br><br>Changed resulting from: ☐ Environmental impacts ☐ Federal, State and/or Local requirements ☐ Corrective/preventive actions to non-conformances ☐ none of the above<br><br>Section/page and Description of change: Significant changes to qualification criteria section 7 to delineate SHSD specific requirements for other organizations generic requirements. | | |
| *Robert Selvey 01/04/05 (Signature on file)*<br>SME Reviewer/Date: | Reviewer/Date: | Reviewer/Date: |

| BROOKHAVEN NATIONAL LABORATORY<br>Safety & Health Services Division<br><br>**INDUSTRIAL HYGIENE GROUP**<br>Standard Operating Procedure | NUMBER<br>**IH60500** |
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| | REVISION<br>**Final Rev10** |
| SUBJECT:<br>**Planning Sampling & Reporting Exposure Monitoring Results** | DATE<br>**06/01/07** |
| | PAGE<br>**10** OF 28 |

Purpose: ☐ Temporary Change ☐ Change in Scope ☒ Periodic review ☒ Clarify/enhance procedural controls

Changed resulting from: ☐ Environmental impacts ☐ Federal, State and/or Local requirements ☐ Corrective/preventive actions to non-conformances ☐ none of the above

Section/page and Description of change: Based on employee comments during the training session of 08/19/05, additions to the text in Section 6 and 7 were made. Changes help clarify passages but do not add or delete requirements or processes. Attachment 9.1 and 9.2 were inverted in order to follow the implementation process. Attachment 9.1 was expanded for clarity. Attachment 9.2 was corrected for minor text errors. The SOP Title was expanded to include "Planning" which is a critical use of this document that the original title did not describe.

| *R. Selvey 08/19/05 (signature/date on file)*<br>SME Reviewer/Date: | *J. Peters 08/22/05 (signature on file)*<br>Reviewer/Date: | Reviewer/Date: |
|---|---|---|

Purpose: ☐ Temporary Change ☐ Change in Scope ☒ Periodic review ☒ Clarify/enhance procedural controls

Changed resulting from: ☐ Environmental impacts ☐ Federal, State and/or Local requirements ☐ Corrective/preventive actions to non-conformances ☒ none of the above

Section/page and Description of change: Revised Section 7 training requirements. Updated Section 10 to new format.

| *R. Selvey 10/31/05 (signature/date on file)*<br>SME Reviewer/Date: | Reviewer/Date: | Reviewer/Date: |
|---|---|---|

Purpose: ☐ Temporary Change ☐ Change in Scope ☐ Periodic review ☒ Clarify/enhance procedural controls

Changed resulting from: ☐ Environmental impacts ☐ Federal, State and/or Local requirements ☐ Corrective/preventive actions to non-conformances ☒ none of the above

Section/page and Description of change: Revised minor errors in Section 7 training requirements. Updated Attachment 9.5 JPM to allow Comprehensive Practice and Limited Scope Qualifications.

| *R. Selvey 12/30/05 (signature/date on file)*<br>SME Reviewer/Date: | Reviewer/Date: | Reviewer/Date: |
|---|---|---|

Purpose: ☐ Temporary Change ☐ Change in Scope ☐ Periodic review ☒ Clarify/enhance procedural controls

Changed resulting from: ☐ Environmental impacts ☐ Federal, State and/or Local requirements ☐ Corrective/preventive actions to non-conformances ☒ none of the above

Section/page and Description of change: Revised Section 7 to clarify IH Professional and Technician education requirements. Updated Attachment 9.5 JPM to eliminate specifics of the education requirement to avoid redundancy with Section 7. Added Step 6.4 on over exposure actions.

| *R. Selvey 01/25/06 (signature/date on file)*<br>SME Reviewer/Date: | Reviewer/Date: | Reviewer/Date: |
|---|---|---|

Purpose: ☐ Temporary Change ☐ Change in Scope ☐ Periodic review ☒ Clarify/enhance procedural controls

Changed resulting from: ☐ Environmental impacts ☐ Federal, State and/or Local requirements ☐ Corrective/preventive actions to non-conformances ☒ none of the above

Section/page and Description of change: Revision based on comments from training class. Minor changes to Section 2.4 and 2.5. Addition to Section 6 for OMC notification and storage of data electronically. Minor typo changes in Attachment 9.1 (Changes marked with right margin bar.

| *R. Selvey 01/31/06 (signature/date on file)*<br>SME Reviewer/Date: | Reviewer/Date: | Reviewer/Date: |
|---|---|---|

Purpose: ☐ Temporary Change ☐ Change in Scope ☐ Periodic review ☒ Clarify/enhance procedural controls

Changed resulting from: ☐ Environmental impacts ☐ Federal, State and/or Local requirements ☐ Corrective/preventive actions to non-conformances ☒ none of the above

Section/page and Description of change: Added Attachment 9.5.

| BROOKHAVEN NATIONAL LABORATORY<br>Safety & Health Services Division<br><br>**INDUSTRIAL HYGIENE GROUP**<br>Standard Operating Procedure | NUMBER<br>**IH60500** |
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|---|---|---|
| *R. Selvey 02/03/06 (signature/date on file)*<br>SME Reviewer/Date: | Reviewer/Date: | Reviewer/Date: |
| Purpose: ☐ Temporary Change ☐ Change in Scope ☐ Periodic review ☒ Clarify/enhance procedural controls<br><br>Changed resulting from: ☐ Environmental impacts ☒ Federal, State and/or Local requirements ☐ Corrective/preventive actions to non-conformances ☒ none of the above<br><br>Section/page and Description of change: Added "Hierarchy of Controls" to Attachment 9.2 to cover 10CFR851. | | |
| *R. Selvey 05/26/06 (signature/date on file)*<br>SME Reviewer/Date: | Reviewer/Date: | Reviewer/Date: |
| Purpose: ☐ Temporary Change ☐ Change in Scope ☐ Periodic review ☒ Clarify/enhance procedural controls<br><br>Changed resulting from: ☐ Environmental impacts ☒ Federal, State and/or Local requirements ☐ Corrective/preventive actions to non-conformances ☒ none of the above<br><br>Section/page and Description of change: Rev9: Added to the distribution list for the reports in Section 6.10 to ensure the organization manager is knowledgeable of his/her duty to correct unsafe conditions. | | |
| *R. Selvey 10/16/06 (signature/date on file)*<br>SME Reviewer/Date: | Reviewer/Date: | Reviewer/Date: |
| Purpose: ☐ Temporary Change ☐ Change in Scope ☐ Periodic review ☒ Clarify/enhance procedural controls<br><br>Changed resulting from: ☐ Environmental impacts ☒ Federal, State and/or Local requirements ☐ Corrective/preventive actions to non-conformances ☒ none of the above<br><br>Section/page and Description of change: Rev10: Document Control # and Dates added to attachments. Re-order Attachment 9.4 and 9.5 to improved document control revision on new 9.4. Added Attachment 9.7 which previously was previously used without document control. Added Attachment 9.8 by moving it from IH75180 to this document. | | |
| *R. Selvey 06/01/07 (signature/date on file)*<br>SME Reviewer/Date: | Reviewer/Date: | Reviewer/Date: |

# Attachment 9.1

# Fundamentals of the Planning Exposure Assessments Sampling

A monitoring sample typically has one characteristic in each of these categories:

- Initiators: Baseline for Routine Events [Proactive], Periodic for Routine Operations [Proactive], or Complaint/Special Event Triggered [Reactive]
- Sampling Location: Personnel (worn on worker), Fixed location (Area).

## I. Initiators:

**Routine operations** are to receive a baseline hazard assessment with periodic monitoring as appropriate to ensure acceptable conditions. Baseline and periodic monitoring parameters/schedules are determined by the IH Professional providing service to an organization. This establishes exposure potential during routine, non-upset conditions.

**Non-routine work activities** (Complaint or Special Event) are to receive individualized IH review (work planning). This can establish exposure potential during infrequent events or upset conditions.

**Negative exposure assessments**- Where no significant worker exposures are found on frequently conducted operations, when possible, the results of sampling are used to prepare assessment statements that can be used for work planning on future operations meeting the exposure scenario.

## II. Sampling types

**A. Personnel Sample:** The preferred sampling type to measure worker exposure potential is a personnel sample and should be used whenever possible. This sampling technique involves a battery operated portable sampling pump and collection media or a direct reading logging dosimeter. In both cases, the sampling device is worn on the workers body in the manner that represent the likely route of exposure (in the breathing zone for inhalation hazards, by the ear for noise hazards, and on the body facing the source for non-ionizing radiation sources. See the specific IH SOP for sampling on the sampling technique for more details.

**B. Fixed Breathing Zone/Exposure Zone Sample:** When the sampling technique is not portable and can not be worn by the worker, then the next best approach is to measure worker exposure potential at the location where the worker is located during exposure. This sampling technique involves a portable sampling pump and collection media or meter placed at the location in space where the worker's body receives the route of exposure (in the breathing zone for inhalation hazards; at ear level for noise hazards; and at the body trunk level for non-ionizing radiation sources). See the specific IH SOP for sampling on the sampling technique for more details.

**C. Area Samples:** Other samples strengthen the conclusions that can be drawn from personnel sample and add more detail to determine the exact route and pattern of exposure. These include:

- **Building Occupant/By-stander sample:** Fixed samples that measure the exposure potential for personnel not involved in the operation and that may not be permanently assigned to the area of sampling. These typically would be fixed sampling devices set in the location in space that transient personnel might frequent during the operation for which personnel and other area samples are being taken.

- **Clean Area (Control):** an area sample taken in an area known to be free of the hazard, to serve as a negative check on the sampling process and laboratory analysis. It may also determine unexpected ambient hazards not previously known in the area.

- **Source sample:** An area sample placed close to the source of the hazard. This serves as a positive check on the sampling method and laboratory analysis or meter operation.

- **Outdoor sample:** An area sample taken when the source is believed to be from an indoor source to verify that there are no contributors to exposure entering the area from other sources.

When **area measurements** are used to characterize personnel exposure or determine the need for a quantitative personnel exposure monitoring, the following items are to be evaluated: Strength of evidence, Likelihood of exceeding the OEL, Potential adverse health effects, Limits of effective or feasible risk management actions, and the need for further data or better understanding of health effects/outcomes.

# Attachment 9.2

# Report Content Requirements

Note: This Attachment is available on the SHSD SOP web page as a Word Document that can be copied and edited to developing an assessment report.

The following information is to be incorporated into all personal exposure monitoring hazard assessment reports. Report attachments may be utilized to fulfill the documentation requirements. For instance, the chain of custody, calibration sheets, and laboratory results will provide some of the information required.

The sampling record must document:

- Essential aspect describing the work & event: Who, What, When, Where, Why
- Essential aspect describing the sampling results: How much, When, Where, Why
- Analysis of Compliance with regulatory requirements
- Needed corrective actions based on the results

| Item Name | Description / Example of appropriate level of documentation |
|---|---|
| **1. Assign the Project Number (completed by Sampler)** | |
| Survey Title | One line description of the survey event that identities the hazard and location. Example: *Lead surface wipe sampling in Building 120* |
| Survey # | Unique identifier number used by sampling organization to track field sampling work. |
| **2. Describe the Event (completed by Sampler)** | |
| First & Last Name of Employee(s) & Life Numbers | Identify person sampled and other potentially exposed personnel or personnel represented by sampling data (i.e. similar exposure group). Example: *This sampling was done on plumber John Doe (BNL 9999). Also represented on this day by the results was his companion plumber on the task Mary Smith (BNL 8888). Also represented by this type monitoring are other plumbers of Plant Engineering who are assigned to periodic maintenance of the XYZ unit boiler.* |
| Supervisor | Name of management/supervisory personnel responsible for the operation. Example: *John Doe of EENS is the owner of the equipment. Mary Smith is the supervisor of work group assigned to perform the episodic replacement of the unit's window.* |
| Task Done | Describe the operation and associated work activities/tasks Example: *The work consisted of wet rag wiping of 124 lead brick to remove oxidation, wrapping them with plastic tape, and stacking the bricks on a pallet for shipment.* |
| Hazard | List the types and sources of potential health hazards (e.g., chemical, physical, or biological agents and ergonomic stressors). Provide the exact name of |

| Item Name | Description / Example of appropriate level of documentation |
|---|---|
| | chemicals/hazards sampled and other hazards represented by the sampling. |
| Date of sampling | Mm/dd/yyyy |
| Time of Day | Military Time that the work occurred. |
| Task frequency | State whether the sampling captures an everyday occurrence, routine event, periodic event, or one-time event. State the frequency of occurrence. Example: *This was a one time event during the preparation for demolition of the building.* |
| Task Normalcy | State whether the sampling captures the route of exposure on a typical day or an emergency, spill, accident, unplanned event, etc. Example: *This operation represents a frequent event in the maintenance cycle of the pump. It is performed typically every 40 to 60 days in a similar manner to the work done during sampling.* |
| Exposure Pattern Normalcy | State whether the exposure represents typical exposure patterns, in terms of frequency, duration, intensity, etc. Example: *This operation was conducted in a similar manner to the way the work is typically done. However, only two workers were used on this day and usually three workers participate. Exposure potential may be higher than typical.* |
| Building | BNL Building # |
| Location | Location within the building such as room number. Provide additional detail on area within a room as appropriate. |
| Organization Name | 2-digit abbreviation |
| Indoors/outdoors | Does exposure occur in a closed in area or outdoors. If outdoors, state the weather during sampling, including temperature and wind speed and direction). Example: *This operation was conducted outdoors on a very windy day. The workers were upwind of the source so exposure potential may be lower than typical.* |
| Worker location | State if the worker(s) were sampled at the location of typical operation. Example: *The operator was stationed at her typical position throughout the monitoring period. Exposure potential is expected to represent typical work conditions.* |
| By-stander Representation | State if the monitoring represents by-stander exposure |
| Compounding Environmental Factors | Describe significant environmental conditions/factors that could affect worker exposure potential, and/or exposure sampling or measurements. Example: *This operation was conducted on a very hot day. A fan was used to cool the worker, and the wind from it may cause excessive dust so that exposure potential may be higher than typical.* |
| Sample Location | List the specific location of the sample. Example: *Sample number 2 was taken four inches from the source and is not representative of worker exposure. Sample 4 and 5 were worn by worker on their lapel and represent their exposure and those of other worker on other days doing this job.* |
| Sketch or photo | A hand drawn sketch, floor plan with sampling locations, or digital photo of the sampling area is to be included. |
| Exposure Sampling Period | Describe if the full exposure event was sampled (all the time of exposure) or which portion was sampled. Describe if the sampling includes time when no exposure would be expected to occur (such as set-up or break-down of controls). Example: *The sample* |

| Item Name | Description / Example of appropriate level of documentation |
|---|---|
| | *pumps were worn during the containment set-up and during the sand blasting. Pumps were worn during the entire blasting period and were removed prior to worker decontamination.* |
| Sample Duration- Time On/ Sample Duration- Time Off | Time of day to the nearest minute that the sampling pump was turned on and off. Multiple times should be recorded if the pump was turned off during breaks, lunch, or other periods. |
| **3. Describe the Sampling Parameters and Analysis Technique (on media sampling): (Completed by SHSD IH Lab)** | |
| Calibration | State the sampling instrument calibration data. |
| Method | State the sampling and analytical methods and protocols used (e.g., those specified by OSHA or NIOSH or other equivalent methods) |
| Laboratory | State the analytical laboratory used. |
| Results | Provide the results of exposure monitoring/ sampling measurements to the IH Professional or Sampler |
| **4. Analysis of Compliance: (Completed by IH Professional)** | |
| Worker Protection status & future needs | Provide supporting data and assumptions (e.g., consideration of respiratory protection or other PPE attenuation factors). Example: *The workers wore full Level C suits, with gloves and boots. Skin route of exposure would be minimal. A full face APR with OVC was worn during the spraying operation. Based on the sampling results, this level of PPE should continue to be used on future operations.* |
| OEL | Identify the applicable occupational exposure limits/industrial hygiene standards, including ACGIH, OSHA, and DOE Exposure Standards and Action Levels. |
| Relevance to OELs | Compare personal exposure levels against recognized occupational exposure standards, e.g., 8-hour time-weighted average (TWA) concentration, short-term exposure level (STEL), peak or ceiling concentration, or average sound pressure level, dBA, and Action Levels.<br><br>Document if the sampling and/or operation was a partial day event<br><br>Describe the impact of the sample duration on the operation if it was extended to a full day- i.e. would exposure be in compliance or would over-exposure occur. |
| Exposure controls | Interpret monitoring/sampling results worker exposure level(s) relative to applicable occupational standards. Note: where personal protective equipment, such as respirators, hearing protectors, etc., was used by workers to attenuate exposures, the documented record should report the measured or estimated unattenuated level(s) of potential personal exposure, along with the type and protection/attenuation factor of the PPE worn.<br>Example: *The workers wore Level C suits, with PAPR, gloves and boots. Based on the* |

| Item Name | Description / Example of appropriate level of documentation |
|---|---|
| | *sampling results, the workers level of exposure exceeded the PEL. While the PPE would have eliminated some actual exposure, the operation is considered out of compliance with the OEL and corrective actions to reduce employee exposure are needed.*<br>Example: *The workers wore ear plugs. Determine the adjusted NRR for the actual brand of equipment used and discuss the impact on the exposure.* |
| Controls in place at time of sampling | Describe the impact of exposure hazard controls (e.g., engineering, administrative, work practice, personal protective equipment) in-place during sampling. Example: *The operation was administratively controlled during this trial period to restrict the work to 2 hour exposure or less. Because of this time limitation on exposure, the OEL was not exceeded. However, if the Administrative limit was not in place and exposure had occurred for 6.5 hours or more, the OEL would have been exceeded. A permanent limitation on exposure to 4 hours or less is required.* |
| **5. Describe Expected actions of worker and management (Completed by IH Professional)** | |
| Needed Control Measures | Describe any recommended, additional control measures, (including engineering, administrative, work practice controls, and/or personal protective equipment), to reduce worker exposures to within acceptable exposure levels and as low as practicable. Differentiate between long-term and interim control measures.<br>Recommendations should be for hazard controls based on the following hierarchy:<br>• Elimination or substitution of the hazards where feasible<br>• Engineering controls where feasible<br>• Work practices and administration controls that limit worker exposures, and<br>• Personal Protective Equipment |
| Need for Medical Surveillance | Determine if the OSHA or BNL trigger has been exceeded. State if medical surveillance is required based on the sampling results. |
| | If medical surveillance is required, inform supervision to identify all the exposure population and to require medical evaluation. Example: *The operation has the potential to expose workers above the Action Level. Identify any workers who have the potential to do this operation for 30 or more days in any 365 period and have them evaluated by the OMC under the medical surveillance protocol.* |
| Need for new or additional Training | State if additional training is needed for the exposed workers. Example: *Worker # 2 had a total dose exceeding the Action Level. The worker needs renewed training in use of ear muffs and plugs and should retake the noise and hearing conservation class.* |
| | If training is required, inform supervision to identify all the exposure population and to require training. Example: *The operation has the potential to expose workers above the Occupational Exposure limit or Action Level. Identify any workers who have the potential to do this operation for 30 or more days in any 365 period and have them trained as per BTMS.* |

| Item Name | Description / Example of appropriate level of documentation |
|---|---|
| Other | Describe any other pertinent factors, hazards, controls, precautions, etc. |

# Attachment 9.3

## Justification for IHG Policy of 5 day Notification

**Based on DOE & OSHA Employee Monitoring Notification Requirements**

The following criteria regarding employee notification have been summarized from required regulatory drivers:

**DOE**

1. Notification to employees exposed **above an OEL.**
2. Notification within a timely manner (e.g., within 10 working days)
3. Recordkeeping "must comply with the requirements of … applicable OSHA hazard-specific or expanded health standards…".

**OSHA** *(as per 29CRF1926.62 Lead in Construction)*

1. Regardless of exposure level, notify employee of monitoring results within given timeframes.
2. When **any OEL** is exceeded, the notification must include corrective actions to be taken to reduce exposures below the OEL.
3. Exposure above the OEL is considered **without regard to respiratory protection.**
4. When over OEL must include statement of exceedance.
5. Notify all workers who are represented by the sampling (some standards require individual notification as well as posting)
6. Post in conspicuous area for all represented workers.

| ANALYTE | OSHA Gen Ind. Const. Reg. | OSHA Working Days | Additional required information |
|---|---|---|---|
| 1,2-dibromo-3-chloropropane (DBCP) (96-12-8) | 1910.1044<br>1926.1144 | **5** | If > PEL, include exceedance statement and description of corrective actions |
| 1,3-Butadiene (106-99-0) | 1910.1051<br>NS | **5** | Within 15 days if > PEL/STEL/Ceiling, include exceedance statement and description of corrective actions with schedule for completion |
| Asbestos (1332-21-4) | 1910.1001/<br>1926.1101 | 15/<br>**ASAP** | If > PEL/STEL, include exceedance statement and description of corrective actions |
| Acrylonitrile (107-13-1) | 1910.1045<br>1926.1145 | **5** | If > PEL/STEL/Ceiling, include exceedance statement and description of corrective actions |

| ANALYTE | OSHA Gen Ind. Const. Reg. | OSHA Working Days | Additional required information |
|---|---|---|---|
| Benzene (71-43-2) | 1910.1028 1926.1148 | 15 | If > PEL/STEL/Ceiling, include exceedance statement and description of corrective actions |
| Beryllium (7440-41-7) | 10CFR850 | 10 days | Any monitoring result If >Action Level: also notify DOE and OMC |
| Cadmium (7440-43-9) | 1910.1027 1926.1127 | 15/ **5** | If > PEL/STEL, include exceedance statement and description of corrective actions |
| Coke Oven Emissions | 1910.1029 1926.1129 | **5** | Within 10 working days if > PEL, include exceedance statement and description of corrective actions |
| Cotton Dust | 1910.1043 NS | 20 | If > PEL/STEL, include exceedance statement and description of corrective actions |
| Ethylene Oxide (75-21-8) | 1910.1047 1926.1147 | 15 | If > PEL/STEL/Ceiling, include exceedance statement and description of corrective actions |
| Formaldehyde (50-00-0) | 1910.1048 1926.1148 | 15 | If > PEL/STEL/Ceiling, include exceedance statement and develop CAP with description of corrective actions |
| Inorganic Arsenic (7440-38-2) | 1910.1018 1926.1118 | **5** | If > PEL/STEL, include exceedance statement and description of corrective actions |
| Laboratory Standard | 1910.1450 NS | 15 | If > PEL, include exceedance statement and description of corrective actions |
| Lead, Inorganic (7439-92-1) | 1910.1025 1926.62 | **5** | If > PEL/STEL, include exceedance statement and description of corrective actions |
| Methylene Chloride (dichloromethane) (75-09-2) | 1910.1052 1926.1152 | 15 | Within 15 days if > PEL/STEL/Ceiling, include exceedance statement and description of corrective actions with schedule for completion |
| Methylenedianiline (5124-30-1) | 1910.1050 1926.60 | 15 | If > PELSTEL/Ceiling, include exceedance statement and description of corrective actions |
| Vinyl Chloride (75-01-4) | 1910.1017 1926.1117 | 10 | If > PEL/STEL/Ceiling, include exceedance statement and description of corrective actions |

| BROOKHAVEN NATIONAL LABORATORY<br>Safety & Health Services Division<br><br>**INDUSTRIAL HYGIENE GROUP**<br>Standard Operating Procedure | NUMBER<br>**IH60500** |
|---|---|
| | REVISION<br>**Final Rev10** |
| SUBJECT:<br>**Planning Sampling & Reporting Exposure Monitoring Results** | DATE<br>**06/01/07** |
| | PAGE<br>**21** OF 28 |

## Attachment 9.4

# Instructions on Saving files for attachment to Compliance Suite Samples/Surveys

These instructions refer to documents and images that we want attached to Compliance Suite(CS) Surveys and/or Samples. By placing them in local or mapped directories they may become irretrievable.

Although CS allows us to attach documents from our hard drives and other locations, to ensure documents/images are kept available through CS, we need to put them all in one location. A directory has been established, which has folders organized by BNL department. You should already have Desktop Shortcuts to these directories. If not, the following instructions show you how to establish them.

Instead of MAPPING a shortcut to the CS-Documents or CS-images directories, you need to ***create a desktop shortcut*** to the proper directory. First check to see if the Desktop Shortcuts already exist. If they exist then skip down to saving files.

***Check for Desktop Shortcuts***

- Go to My Computer
- Select Desktop from the drop down (If the two shortcuts appear [CS-Images and CS-documents] then skip down to saving files)

***Create Desktop Shortcuts***

Images

- Right click on your windows screen
- Select new
- Then select shortcut
- In the location box type: \\bnl-apps\CS-Images

Documents

- Do the same for: \\bnl-apps\CS-documents

***Saving Files***

- Have the file open (word document, PDF, spreadsheet, jpeg, etc. it doesn't matter)
- Select "File" then "Save As"
- You need to save through the desktop shortcut, so select Desktop on the left toolbar. If you don't have this, select Desktop from the drop down list.
- The two folders will appear. Select *CS-documents* for a document and *CS-Images* for a photo
- Now select the department folder, name your file and save. For file naming use the sample number then some short descriptor (e.g. 120-020206-PN-01-tech; 120-020206-AN-01-survey_map).
- This ***does not*** attach your file to the survey/sample in CS. You still need to go to CS and attach the file as you normally would.

BROOKHAVEN NATIONAL LABORATORY

# IH60500 Attachment 9.5

# 5-day Employee Notification Record

| Date Results Received: | Date Notification Due: | Date Notification Completed: |
|---|---|---|
| | | |

| Date of Sampling: | Work Location: |
|---|---|
| Work Being Conducted: | |

This Section to be completed

**Sample**

Note: the hazard section can be modified to meet the needs of the sampling results

See the SHSD SOP Web Page for the current version of this form as a Word document.

| **Exposure in Compliance** with Standards (& OSHA) | **ure Exceeds andards** (GIH or OSHA) |
|---|---|
| Review of this data indi exposure levels were **in compliance** with regulatory limits. The employees represented by this exposure monitoring were informed of the results by:<br>Print Name:<br>Notifier's Signature: | regulatory level. Worker's personal protective equipment was sufficient. Employees represented by this exposure were informed of the results and corrective actions by:<br>Print Name:<br>Notifier's Signature: |

| s data indicates els were **ABOVE** a regulatory limit. The employees represented by this exposure monitoring were informed of the results and corrective actions by:<br>Print Name:<br>Notifier's Signature: |
|---|

**Hazard:**

| Employee Name/ BNL ID #'s | Calculated Exposure **Without** PPE Protection | Calculated Exposure **With** PPE Protection | **OSHA** Occupational Exposure Limits | **ACGIH** Occupational Exposure Limits |
|---|---|---|---|---|
| | a. Real time Exposure=<br>b. $TWA_8$ = | a. Real time Exposure=<br>b. $TWA_8$ = | PEL =<br>AL =<br>C = | TLV =<br>STEL =<br>C = |
| | | | | |
| | | | | |
| | | | | |
| | | | | |

**PEL** = Permissible Exposure Limit **AL** = Action Level **C** = Ceiling Limit **TLV** = Threshold Limit Value **STEL** = Short Term Exposure Limit
Real time Exposure= Concentration during sampling

**Corrective Actions**
**Required when Personal Exposure is Above Occupational Exposure Limit(s)**

| **Corrective Action Needed (Substitution, Engineering Controls, Administrative Controls, PPE):** | **Implementation Due Date:** |
|---|---|
| | |

**Who received a copy of this form:** *Write in the name*

| | | |
|---|---|---|
| **Worker:** | **Supervisor:** | **ESH Coordinator:** |
| **Worker:** | **IHG:** | **Other:** |
| **Worker:** | **OMC:** | **Other:** |
| **Worker:** | **FS Rep:** | **Other:** |

BROOKHAVEN NATIONAL LABORATORY

# IH60500 Attachment 9.6
# ___HP-IHP-60500-A
# ___HP-IHP-60500-B

**Environmental, Safety, Health & Quality Directorate**
**SHSD Industrial Hygiene**

## Planning Sampling & Reporting Personnel Exposure Monitoring
### Job Performance Measure (JPM) Completion Certificate

| Candidate's Name | Life Number: | Qualification Date: |
|---|---|---|
| [ ] B - Comprehensive IH Technician [ ] A – Comprehensive IH Professional<br>[ ] B - Limited Scope IH Technician [ ] A - Limited Scope IH Professional | | |

Note: This qualification is valid for 3 years. However, in order to maintain valid in qualification, at least three monitoring events (for technicians) or at least three hazard assessment reports (for professionals) is to be completed each year. If that minimum sampling is not maintained, the re-qualification on this procedure is required.

I accept the responsibility for performing this task as demonstrated within this JPM and the corresponding SOP.

| Candidate Signature: | Date: |
|---|---|
| | |

I certify the candidate has satisfactorily performed each of the steps listed below and is capable of performing the task unsupervised.

| Evaluator Signature: | Date: |
|---|---|
| | |

## Part 1: Formal Education

| | |
|---|---|
| **Most advanced or applicable College Degree**<br>**Granting Institution:** | |
| **Formal Training Title:**<br>**Provider:** | **Date of Class** |

## Part 2: Industrial Hygiene Practice Experience

| | |
|---|---|
| **Years of Experience in IH discipline**<br>**Organization: Brookhaven National Laboratory** | **Dates of Service** |
| **Years of Experience in IH discipline**<br>**Organization:** | **Dates of Service** |
| **Years of Experience in IH discipline**<br>**Organization:** | **Dates of Service** |

**IH Technician**

| Criteria | Qualifying Performance Standard | Unsat. | Recov. | Satisf. |
|---|---|---|---|---|
| **1. Area Hazards** | Understands the need to be aware of the potential surface contamination, airborne levels of contaminants, radiological hazards, and noise hazards. Knows how to determine the need for PPE. | | | |
| **2. Sampling Equipment** | Knows the appropriate equipment needed for the analysis. Knows how to use it and its limitations. Knows where equipment needed for the procedure is located and how to properly sign it out. | | | |
| **3. Assessment Protocol** | Has a basic understanding of the importance of multiple sampling points, sources sampling, breathing zone samples, and background samples. | | | |
| **4. Completing & Maintaining Documents** | Shows where forms to record assessment results are located and how to correctly and completely fill them out. Demonstrates knowledge of the SHSD Record Custodian files and the *Compliance Suite* database. | | | |

**IH Professional**

| Criteria | Qualifying Performance Standard | Unsat. | Recov. | Satisf. |
|---|---|---|---|---|
| **1. Sampling Equipment** | Knows the appropriate equipment needed for the analysis. Knows how to use it and its limitations. Knows where equipment needed for the procedure is located and how to properly sign it out. | | | |
| **2. Assessment Protocol** | Understands the assessment logic necessary to appropriately select sampling locations to accurately measure worker exposure potential. | | | |
| **3. Exposure Assessment Strategy** | Demonstrates sufficient knowledge of the principles in Attachment 9.2 Fundamentals of the BNL Exposure Assessment Strategy | | | |
| **4. Completing & Maintaining Documents** | Shows where forms to record assessment results are located and how to correctly and completely fill them out. Demonstrates knowledge of how to enter documents in the BNL record management system, the SHSD Record Custodian files, and the *Compliance Suite* database. | | | |
| **5. Notification of Employees** | Knows the requirement for reporting results to employees as specified in Attachment 9.3 and how to use Attachment 9.5 | | | |
| **6. Distribution of copies** | Demonstrates how to correctly distribute IH monitoring results/reports to workers, supervision, and OMC within prescribed time limits. | | | |
| **7. Exposure Standards** | Demonstrates knowledge of each applicable occupational exposure limit, action level, TLV, PEL, STEL, etc. | | | |
| **8. Corrective Actions** | Demonstrates knowledge of engineering controls, administrative controls, and personal protective equipment and operation adjustments that can improve or eliminate hazards. | | | |
| **9. Hazard Analysis** | Demonstrates knowledge of the various types of IH hazards and conditions, and the essential steps in performing a meaningful hazard analysis of the work operation and area. | | | |
| **10. Analysis of data** | Shows how to perform the data analysis to assess potential exposure to the worker. | | | |
| **11. Assessment Report Content** | Demonstrate the knowledge that all items in Attachment 9.1 must be addressed in the assessment report and states commitment to meet its requirements. | | | |

BROOKHAVEN NATIONAL LABORATORY

managed by Brookhaven Science Associates for the U.S. Department of Energy

# Industrial Hygiene Monitoring Activity History During Sampling

IH60500 Attachment 9.7

| Sample Number: | Operation: |
|---|---|
| Date: | Employee Sampled: |

| Time | Location | Activity |
|---|---|---|
| 8:00 – 8:30 | | |
| 8:30 – 9:00 | | |
| 9:00 – 9:30 | | |
| 9:30-10:00 | | |
| 10:00 – 10:30 | | |
| 10:30 – 11:00 | | |
| 11:00 – 11:30 | | |
| 11:30 – 12:00 | | |
| 12:00 – 12:30 | | |
| 12:30 – 1:00 | | |
| 1:00 – 1:30 | | |
| 1:30 – 2:00 | | |
| 2:00 – 2:30 | | |
| 2:30 – 3:00 | | |
| 3:00 – 3:30 | | |
| 3:30 – 4:00 | | |
| 4:00 – 4:30 | | |
| 4:30 – 5:00 | | |
| 5:00 – 5:30 | | |
| 5:30 – 6:00 | | |

| Comments on Significant, Unusual, or Non-Typical Events during Sampling |
|---|
| |

| Person Recording the Activity: | Signature |
|---|---|
| | |

**BROOKHAVEN NATIONAL LABORATORY** **DIRECT READING INSTRUMENT**
ENVIRONMENTAL, SAFETY, HEALTH & QUALITY DIRECTORATE

| DATE: | SURVEYOR(S): |
|---|---|

**I. AREA INFORMATION**

| DEPT: | BLDG: | ROOM: |
|---|---|---|
| SOURCE: | | |
| ENGINEERING CONTROLS: | | |

**II. EMPLOYEE INFORMATION**

| FIRST NAME: | LAST NAME: | BNL #: |
|---|---|---|
| DEPT: | BLDG: | JOB TITLE: |
| EXPOSURE DURATION (HRS): | EXPOSURE (TIMES PER DAY): | EXPOSURE (DAYS PER YR): |
| JOB/TASK PERFORMED: | | |
| PPE USED: | | |

**III. SURVEY INSTRUMENT INFORMATION**

| INSTRUMENT: | MODEL: | SERIAL#: |
|---|---|---|
| FACTORY CALIBRATION DATE: | PRE-CAL: BY: | POST CAL: BY: |

**IV. SAMPLING INFORMATION & RESULTS**

| HAZARD | UNITS: | CORRECTION FACTOR: |
|---|---|---|

| TIME | LOCATION | READING | COMMENTS |
|---|---|---|---|
| | | | |
| | | | |
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| | | | |

_____ Additional monitoring data on page 2

**V. CONCLUSIONS & RECOMMENDATIONS**

| TIME | LOCATION | READING | COMMENTS |
|---|---|---|---|
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